



DEPARTMENT OF TRANSPORTATION  
HAZARDOUS MATERIALS REGULATIONS BOARD

WASHINGTON, D.C. 20590

24915

[ 49 CFR Parts 172, 173 ]

[Docket No. HM-57; Notice No. 73-6]

CLASSIFICATION AND PACKAGING OF  
CORROSIVE MATERIALS

Notice of Proposed Rule Making

On March 23, 1972, April 26, 1972, September 16, 1972, May 16, 1973, and August 3, 1973, the Hazardous Materials Regulations Board (the Board) published Docket No. HM-57, Amendment Nos. 171-14, 172-14, 172-20, 173-61, 173-74, 174-14, 175-7, 177-21, 178-26 (37 FR 5946, 8383, and 18918, 38 FR 12807 and 20837) prescribing new regulations for the classification, packaging, marking, labeling, and transportation of corrosive materials. Compliance with these amendments has been authorized as of April 21, 1972. The mandatory effective date is December 31, 1973.

When the Board extended the mandatory effective date to December 31, 1973 (38 FR 12807), it stated that several problems remained to be resolved. On August 3, 1973, the Board published Amendment Nos. 172-20, 173-74, and 178-26 in this docket which resolved several issues. This notice proposes changes to resolve the remaining difficulties existing for the one involving materials corrosive only to metals. The Board expects to propose a final resolution in this matter in the near future. In this document, the Hazardous Materials Regulations Board is considering amendment of Parts 172 and 173, to add a new § 173.249a, and to amend §§ 172.5, 173.28, 173.119, 173.244, and 173.245.

**Tariff 6D.**—The proposed changes to § 172.5 are based on several different sources of information. The primary source is the Air Transport Restricted Articles Tariff No. 6D which is the tariff used by many airlines as their public disclosure on the materials authorized aboard aircraft and the conditions under which they will be transported. The materials listed in Tariff 6D are identified in § 172.5 of this document by abbreviations following the name of the material, i.e., "(Cor)" for Corrosive liquid, "(B)" for ORA B. "ORA B" means "Other Restricted Article, Group B" and is defined in Tariff 6D as "a solid material which, when wet, becomes strongly corrosive so as to be capable of causing damage to aircraft structure." These abbreviations represent the classification given the subject materials in Tariff 6D before July 28, 1973. In a recent revision to Tariff 6D, the classification of a number of materials was changed from ORA B to "corrosive material." These changes have highlighted the existence of discrepancies between the DOT Hazardous Materials Regulations and Tariff 6D regarding corrosive materials. The Board has informa-

tion regarding certain materials that indicates they may not meet the corrosive material definition. Both publications use the same definition.

Based on the evaluation of the information available to the Board, it is of the opinion that many of the corrosive materials listed in the tariff are properly classed. In an effort to ascertain that the materials listed in § 172.5 as proposed herein meet the corrosive material definition, the Board requests that additional data be made available to it.

The Board is primarily interested in reviewing data representing results of the tests prescribed in § 173.240. It also requests that persons submitting data only on metals testing indicate that the material is not skin corrosive according to the test in § 173.240(a) if this is the case. They should also indicate if the material is corrosive to steel or aluminum, or both. According to the items that are finally added to § 172.5, the Board will make corresponding changes in Part 173 in the final amendment.

As an ancillary action, after the data has been reviewed and classification determinations have been completed through the rule making process, the Department will undertake to notify the Civil Aeronautics Board of all discrepancies. In this manner, it is hoped that Tariff 6D and the DOT Hazardous Materials Regulations will be made more uniform thereby facilitating compliance with all regulations. The Board intends to follow this procedure for all classes of hazardous materials as it proceeds with the updating of its own regulations.

**Additional shipping names.**—The Board has information on approximately 40 additional materials which could be corrosive, and are not named in this notice. However, on the basis of the information submitted, the Board believes that some of the materials possibly should be classed as flammable liquids or Class B poisons, and is reviewing this matter in more depth. If a material requested by a petitioner to be added to § 172.5 has a Tagliabue Open-Cup (T.O.C.) flash point slightly above 100°F. or between 80°F. and 100°F., the Board did not include the material in the list because of other pending rule making in HM-102. Any person observing that the Board has not provided for a material in this list as he requested, may request further consideration by providing data indicating that the material is not a Class B poison or a flammable liquid (open and closed cup flash point). There is no need to provide such data if these persons anticipate shipping these materials as Class B poisons, n.o.s. or corrosive liquids, n.o.s., as they deem appropriate. If the T.O.C. flash point is 80°F. or below and the material meets the definition in § 173.343, the material would be classed as a flammable liquid or a Class B poison, not a corrosive material.

**Additional packagings.**—Some persons petitioned the Board to add certain packagings in §§ 173.119(m) and 173.245. On the basis of these petitions and the satisfactory experience gained with the use of these packagings to transport materials similar to those now covered by the regulations, §§ 173.119(m) and 173.245 are proposed to be amended.

**Reconditioned drums.**—Several petitions were received to amend § 173.28 (h) to provide for the use of series 17 reconditioned drums. This proposal includes a provision for limited use of these drums in a service where they have been successfully used under special permit or for materials not considered corrosive prior to revision of § 173.240.

**Small quantities and exemptions.**—The Council for Safe Transport of Hazardous Articles (COSTHA) has petitioned the Board for reconsideration of Amendment 173-61 in Docket HM-57 to amend the small quantities exemption provision of § 173.244 to relieve shippers from what it considers an unwarranted burden of regulation when packaging and shipping small quantities of corrosive liquids. The Board believes that the portion of COSTHA's petition relating to exemption from specification packaging requirements when corrosive liquids are packed in inside metal or plastic packagings each not over 32 ounces by volume or weight has merit. It proposes to exempt corrosive liquids when so packaged from specification packaging, by amending § 173.244.

**"Low hazard" corrosive liquids.**—Several petitions were received requesting that the use of certain non-DOT specification packagings be authorized for corrosive liquids not considered corrosive by shippers prior to revision of § 173.240. These materials have been identified to the Board as presenting a lesser degree of hazard. In this proposal, the Board has agreed with several of the petitioners. However, it has modified the description of the material as presented by petitioners, in an effort to assure that corrosive liquids having a higher degree of hazard would not be shipped under these provisions. A new § 173.249a is proposed to prescribe packaging for these materials. Meanwhile, the Board has been inquiring into the strength of some of the packaging referenced to determine if upgrading of the packaging is warranted and feasible. Depending on the outcome of the Board's review and the records of experience that it gathers regarding the shipment of materials in these packagings, the Board may propose further rule making in this area.

**Previously submitted data.**—Some data has been provided to the Board indicating that certain materials proposed to be classified as corrosive materials do not meet § 173.240. For example, some aluminum chloride solutions apparently do not meet § 173.240. While the Board does not dispute this data and this data has been made a part of the docket, it desires to obtain the advice of persons



who possess information either supporting or opposing the proposed classification of the materials as corrosive. However, persons who have submitted any data on materials listed in this notice should reaffirm their conclusions by simply referring to the data previously submitted. It is not necessary to resubmit the data. This procedure will permit the Board to have the benefit of the latest data available and it will avoid any oversights caused by the extremely large volume of data that has been developed in this docket.

In consideration of the foregoing, it is proposed to amend 49 CFR Parts 172 and 173 as follows:

**PART 172—LIST OF HAZARDOUS MATERIALS CONTAINING THE SHIPPING NAME OR DESCRIPTION OF ALL MATERIALS SUBJECT TO PARTS 170-189 OF THIS SUBCHAPTER**

In § 172.5 the list of hazardous materials would be amended as follows:

§ 172.5 List of hazardous materials.

(a) \* \* \*

Article	Classed as—	Exemptions and packing (see sec.)	Label required if not exempt	Maximum quantity in 1 outside container by rail express
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(Add)

*Acetic acid (Cor) (aqueous solution).	Cor	173.244, 173.245	Corrosive.	10 gallons.
Acetic acid, glacial (Cor)	Cor	173.244, 173.245	Do.	Do.
Acetic anhydride (Cor)	Cor	173.244, 173.247	Do.	1 gallon.
Acetyl bromide (Cor)	Cor	173.244, 173.247	Do.	Do.
*Acid chloride compound, liquid	Cor	173.244, 173.249	Do.	10 gallons.
*Alkanesulfonic acid (Cor)	Cor	173.244, 173.245	Do.	5 pints.
Aluminum bromide, anhydrous,	Cor	173.244, 173.245	Do.	1 gallon.
Aluminum chloride, anhydrous,	Cor	173.244, 173.245b	Do.	100 pounds.
*Aluminum chloride solution.	Cor	173.244, 173.245b	Do.	Do.
Aluminum phosphate, solid	Cor	173.244, 173.245b	Do.	10 gallons.
2-(2-Aminoethoxy) ethanol	Cor	173.244, 173.245	Do.	100 pounds.
n-Aminoethylpiperazine	Cor	173.244, 173.245	Do.	Do.
Aminopropylmethanamine	Cor	173.244, 173.245	Do.	Do.
n-Aminopropylmorpholine	Cor	173.244, 173.245	Do.	Do.
bis-(Aminopropyl) piperazine.	Cor	173.244, 173.245	Do.	Do.
*Ammonium hydrogen fluoride, solid	Cor	173.244, 173.245b	Do.	100 pounds.
*Ammonium hydrogen fluoride solution (B).	Cor	173.244, 173.245	Do.	5 gallons.
Amyl acid phosphate.	Cor	173.244, 173.245	Do.	10 gallons.
*Antimony trichloride, solid (Cor)	Cor	173.244, 173.245b	Do.	100 pounds.
*Antimony trichloride solution (Cor)	Cor	173.244, 173.245	Do.	5 pints.
Boron trifluoride-acetic acid complex (Cor).	Cor	173.244, 173.247	Do.	1 gallon.
*Bromosacetic acid, solid (B)	Cor	173.244, 173.245b	Do.	100 pounds.
n-Butyl acid phosphate (B)	Cor	173.244, 173.245	Do.	1 quart.
Butyric acid	Cor	173.244, 173.245	Do.	5 gallons.
*Calcium hydrogen sulfite solution (B).	Cor	173.244, 173.245	Do.	10 gallons.
Caustic potash, dry or solid. See Caustic soda, dry, etc.	Cor	173.244, 173.245	Do.	5 gallons.
Chloroacetic acid, solid (B)	Cor	173.244, 173.245b	Do.	100 pounds.
Chlorophenyl trichlorosilane (Cor)	Cor	No exemption, 173.280.	Do.	100 pounds.
*Chromic fluoride, solid (B)	Cor	173.244, 173.245b	Do.	100 pounds.
*Coal tar dye, liquid (not otherwise specified) named in § 172.5	Cor	173.244, 173.245	Do.	1 gallon.
*Compounds, cleaning, liquid (containing phosphoric acid, acetic acid, sodium or potassium hydroxide)	Cor	173.244, 173.249a	Do.	10 gallons.

Article	Classed as—	Exemptions and packing (see sec.)	Label required if not exempt	Maximum quantity in 1 outside container by rail express
Crotonic acid	Cor	173.244, 173.245	Do.	Do.
Dichloroacetic acid (Cor)	Cor	173.244, 173.245	Do.	1 quart.
Dichloroacetyl chloride (Cor)	Cor	173.244, 173.247	Do.	1 gallon.
Dichloroisopropyl ether	Cor	173.244, 173.245	Do.	10 gallons.
Dichlorophenyl trichlorosilane (Cor).	Cor	No exemption, 173.280.	Do.	Do.
Dichloropropene — dichloropropene mixture.	Cor	173.244, 173.245	Do.	Do.
Dichloropropene and propylene dichloride mixture.	Cor	173.244, 173.245	Do.	Do.
Di(2-ethylhexyl) phosphoric acid.	Cor	173.244, 173.245	Do.	Do.
Disopropylethanolamine	Cor	173.244, 173.245	Do.	Do.
Diphenylmethylenediamine, solid (Cor).	Cor	173.244, 173.245b	Do.	100 pounds.
*Diphenylmethyl bromide solution (Cor).	Cor	173.244, 173.247	Do.	1 gallon.
*Dye intermediate, liquid	Cor	173.244, 173.249a	Do.	10 gallons.
*Ferric chloride, solid (B)	Cor	173.244, 173.245b	Do.	100 pounds.
*Ferric chloride solution	Cor	173.244, 173.245	Do.	10 gallons.
Fluoboric acid (Cor)	Cor	173.244, 173.245(a)	Do.	1 quart.
Formaryl chloride (Cor)	Cor	173.244, 173.245	Do.	100 pounds.
Hexamethylene diamine, solid (Cor)	Cor	173.244, 173.245b	Do.	100 pounds.
Hexamethylene imine	Cor	173.244, 173.245	Do.	Do.
*Hydrazine solution, containing more than 60% of water.	Cor	173.244, 173.245	Do.	5 gallons.
Iminobispropylamine	Cor	173.244, 173.245	Do.	10 gallons.
Iodine pentachloride (Cor)	Cor	No exemption, 173.284	Do.	100 pounds.
Isobutyric acid	Cor	173.244, 173.245	Do.	10 gallons.
Isopentanoic acid	Cor	173.244, 173.245	Do.	Do.
Isopropyl acid phosphate, solid (B)	Cor	173.244, 173.245b	Do.	100 pounds.
Lead sulfate, solid, containing more than 9% free acid.	Cor	173.244, 173.245b	Do.	Do.
Methyl chloroform	Cor	173.244, 173.245	Do.	10 gallons.
Methyl dichloroacetate (Cor)	Cor	173.244, 173.245	Do.	1 quart.
Methyl ethyl pyridine	Cor	173.244, 173.245	Do.	1 quart.
Methyl nonboronene dicarboxylic anhydride.	Cor	No exemption, 173.245	Do.	1 quart.
*Mining reagent, liquid (containing 20% or more cresylic acid).	Cor	173.244, 173.249a	Do.	10 gallons.
Monoethanolamine	Cor	173.244, 173.245	Do.	Do.
Nonyl phenol	Cor	173.244, 173.245	Do.	Do.
*Phenolsulfonic acid, liquid (Cor)	Cor	173.244, 173.245	Do.	10 pints.
*Potassium hydrogen fluoride solution (Cor).	Cor	173.244, 173.249	Do.	5 gallons.
*Potassium fluoride solution (Cor)	Cor	173.244, 173.249	Do.	Do.
Potassium hydroxide, dry or solid. See Caustic soda, dry, etc.	Cor	173.244, 173.249	Do.	Do.
Propionic acid (B)	Cor	173.244, 173.245	Do.	Do.
Propylene anhydride	Cor	173.244, 173.245	Do.	10 gallons.
Selenic acid, liquid (Cor)	Cor	No exemption, 173.245	Do.	Do.
Soda lime, solid (B)	Cor	173.244, 173.245	Do.	5 pints.
*Sodium fluoride solution (Cor)	Cor	173.244, 173.245	Do.	100 pounds.
*Sodium hydrogen sulfate, solid (B)	Cor	173.244, 173.245b	Do.	5 gallons.
*Sodium hydrogen sulfate solution (Cor).	Cor	173.244, 173.245	Do.	1 gallon.
Sodium hydrogen sulfite, solid (B)	Cor	173.244, 173.245b	Do.	100 pounds.
Sodium monoxide, solid (B)	Cor	173.244, 173.245	Do.	10 gallons.
Sodium phenolate, solid	Cor	173.244, 173.245b	Do.	100 pounds.
Tetraethylenepentamine	Cor	173.244, 173.245	Do.	Do.
1,2,3,6-tetrahydrobenzazepine	Cor	173.244, 173.245	Do.	10 gallons.
Tetramethylenediamine hydroxide, liquid (Cor).	Cor	173.244, 173.245	Do.	Do.
*Textile treating compound mixture, liquid.	Cor	173.244, 173.249a	Do.	Do.
Thioglycolic acid (Cor)	Cor	173.244, 173.245	Do.	1 gallon.
Toluene sulfonic acid	Cor	173.244, 173.245	Do.	10 gallons.
Trichloroacetic acid, solid (B)	Cor	173.244, 173.245b	Do.	100 pounds.



Article	Classed as—	Exemptions and packing (see sec.)	Label required if not exempt	Maximum quantity in 1 outside container by rail express
*Trichloroacetic acid solution (Cor)	Cor	173.244, 173.245	do	1 quart.
1,1,2-trichloroethane	Cor	173.244, 173.245	do	10 gallons.
Trimethyl acetylchloride (Cor)	Cor	173.244, 173.247	do	1 gallon.
Valeric acid	Cor	173.244, 173.245	do	10 gallons.
Valeryl chloride (Cor)	Cor	173.244, 173.245	do	1 gallon.
White acid (ammonium biftuoride and hydrochloric acid mixture) (Cor)	Cor	173.244, 173.245	do	Do.
*Zinc chloride solution (Cor)	Cor	173.244, 173.245	do	1 quart.
Zirconium tetrachloride, solid (Change)	Cor	173.244, 173.245b	do	100 pounds.
*Acids, liquid, n.o.s.	Cor	173.244, 173.245	do	5 pints.
*Alkaline corrosive liquids, n.o.s.	Cor	173.244, 173.249	do	10 gallons.
*Antimony pentachloride solution	Cor	173.244, 173.245	do	5 pints.
*Chromic acid solution	Cor	173.244, 173.245, 173.287	do	1 gallon.
*Cupriethylene-diamine solution	Cor	173.244, 173.249	do	Do.
*Formic acid solution	Cor	173.244, 173.245, 173.289	do	5 gallons.
*Hexamethylene diamine solution	Cor	173.244, 173.249, 173.292	do	10 gallons.

## PART 173—SHIPPERS

1. In Part 173 Table of Contents, § 173.249a would be added to read as follows:

Sec.  
173.249a Acid chloride compound, liquid, Coal tar dye, liquid, Cleaning compound, liquid, Dye intermediate, liquid, Mining reagent, liquid, and Textile treating compound mixture, liquid.

2. In § 173.28, the introductory text of paragraph (m) would be amended to read as follows:

§ 173.28 Reuse of containers.

(m) Specifications 17C, 17E, and 17H (steel drums (§§ 178.115, 178.116, 178.118 of this subchapter) from which contents have been removed, may be reused as prescribed in this part as packagings for shipment of flammable liquids, flammable solids, oxidizing materials, radioactive materials, and corrosive liquids covered by §§ 173.249 and 173.249a, only if the following requirements, in addition to the other requirements of this section, are complied with prior to each reuse:

3. In § 173.119, paragraph (m) (16) would be added to read as follows:

§ 173.119 Flammable liquids not specifically provided for.

(m) \* \* \*

(16) Specification 6D or 37M (nonreusable container) (§§ 178.102, 178.134 of this subchapter). Cylindrical steel overpacks with an inside specification 2S or 2SL (§§ 178.35, 178.35a of this subchapter) polyethylene container. Authorized only for materials that will not react with polyethylene and result in container failure.

4. In § 173.244, paragraph (a) would be amended to read as follows:

§ 173.244 Exemptions for corrosive materials.

(a) Except corrosive liquids for which no exemption is provided in § 172.5 of this subchapter and unless otherwise provided in this part, corrosive liquids

are exempt from specification packaging requirements when packaged:

(1) In inside metal or plastic packaging not over 32 ounces by volume or weight each;

(2) In inside glass bottles having a capacity not over 16 ounces by volume or weight each and enclosed in an inside metal can. This packaging is also exempt from Part 177 of this subchapter, except § 177.817, and from marking and labeling requirements. However, marking name of contents on outside packaging is required for shipments by water.

5. In § 173.245, paragraph (a) (4) would be amended; paragraph (a) (34) would be added to read as follows:

§ 173.245 Corrosive liquids not specifically provided for.

(a) \* \* \*

(4) Specification 5A, 5B, 5C, or 5M (§§ 178.81, 178.82, 178.83, 178.90 of this subchapter). Metal barrels or drums.

(34) Specification 42B (§ 178.107 of this subchapter). Aluminum drum.

6. § 173.249a would be added to read as follows:

§ 173.249a Acid chloride compound, liquid, coal tar dye, liquid, cleaning compound, liquid, dye intermediate, liquid, mining reagent, liquid, and textile treating compound mixture, liquid.

(a) An acid chloride compound subject to this section is a liquid acid chloride compound not otherwise specifically named in § 172.5(a) of this subchapter.

(b) A liquid cleaning compound subject to this section must not contain any corrosive material specifically named in § 172.5(a) of this subchapter, except phosphoric acid, acetic acid, and not over 15 percent sodium or potassium hydroxide.

(c) A liquid dye intermediate is a ring compound, containing amino, hydroxy, sulfonic acid, or quinone group or a combination of these groups, used in the manufacture of dyes, and not otherwise specifically named in § 172.5 of this subchapter.

(d) Liquid acid chloride compound, liquid coal tar dye, liquid cleaning compound, liquid dye intermediate, liquid mining reagent, and liquid textile treating compound mixture must be packaged as follows:

(1) In specification packagings as prescribed in § 173.245.

(2) In packaging meeting all of the specific requirements prescribed in § 173.245 including packaging type and quantity limitations for inside packagings. The packagings are not required to meet the detailed specification requirements of Part 178 of this subchapter except that size and weight limitations for package types as prescribed in Part 178 may not be exceeded.

(3) Removable (open) head fiber drum lined or coated on the inside with a plastic material, not over 55-gallon capacity.

(4) Removable (open) head metal drum, not over 55-gallon capacity.

(5) Removable (open) head polyethylene drum, not over 6.5-gallon capacity.

Interested persons are invited to give their views on these proposals. Communications should identify the docket number and be submitted in duplicate to the Secretary, Hazardous Materials Regulations Board, Department of Transportation, Washington, D.C. 20590. Communications received on or before November 6, 1973, will be considered before final action is taken on these proposals. All comments received will be available for examination by interested persons at the Office of the Secretary, Hazardous Materials Regulations Board, room 6215 Buzzards Point Building, Second and V Streets SW., Washington, D.C., both before and after the closing date for comments.

(Secs. 831-835, title 18, U.S.C., sec. 9, Department of Transportation Act (49 U.S.C. 1657); title VI, sec. 902(h), Federal Aviation Act of 1958 (49 U.S.C. 1421-1430, 1472(h), and 1655(c))

Issued in Washington, D.C., on August 31, 1973.

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Director, Office of  
Hazardous Materials.

[FR Doc. 73-19013 Filed 9-10-73; 8:45 am]